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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,760	02/02/2001	Charles B. Mallon	17795-2-PC	5787

7590 09/15/2003

UNION CARBIDE CORP.
39 OLD RIDGEBURY ROAD
DANBURY, CT 06817

EXAMINER
KHARE, DEVESH

ART UNIT	PAPER NUMBER
1623	

DATE MAILED: 09/15/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/775,760	MALLON ET AL.	
	Examiner	Art Unit	
	Devesh Khare	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the c rrespondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 33-51 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 33-51 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Applicant's Amendment and remarks filed on 4/10/03 on paper no. 8 is acknowledged.

Claims 33,39,45 and 50 have been amended.

Rejection Maintained

Rejection of claims 33-51 under 35 U.S.C. 103(a) is maintained for the reasons of record.

35 U.S.C. 103(a) rejection

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 33-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warzècha et al. (DE 1668347) in view of Takahashi et al. (JP 1-149801) of record.

The claims 33-51 are directed to processes for producing polysaccharide ethers, which are broadly comprised of two components:

(1) a process for producing polysaccharide ethers known in the prior art; and

(2) the improvement in the process wherein the salts of polysaccharide ether formed in the processes are converted to their corresponding acids and bases by means of an electric current, e.g., by electrodialysis.

Warzecha et al. teach a process for purifying crude hydroxyethylcellulose (page 3, 3rd. paragraph). On page 1, 2nd paragraph and page 3, 3rd. paragraph, cellulose is treated with sodium hydroxide and then reacted with derivatizing agent ethylene oxide in a mixture of organic solvents containing methanol and acetone to form a reaction product comprising hydroxyethylcellulose (polysaccharide ether), the reaction mixture is further treated with nitric acid to provide a neutralized liquid comprising a salt of the acidic compound and the basic compound. While the Warzecha et al. process is closely analogous to the applicant's process, Warzecha et al. differ from applicant's process in that the separation of the polysaccharide ether is achieved by subjecting the neutralized reaction mixture to distillation instead of electrodialysis.

Takahashi et al. teach the use of electrical energy to eliminate sodium from a cellulose ether salt.Takahashi et al. teach a method of subjecting a cellulose ether sodium salt to electrodialysis to convert it to the acid form, followed by reaction with a base or salt (claims 1-4). On page 5, Working Example 1, a carboxymethylcellulose sodium salt in the absence of any organic solvent is electrodialysed comprising electrodes and ultrafiltration membranes as the dialysis membranes and at a current of 0.55 A. It is noted that Takahashi et al. does not provide specific disclosures regarding the use of current densities and variable pH's in the prior art electrodialysis process.

Therefore, one of ordinary skill in the art would have found the applicants claimed process for producing polysaccharide ethers to have been obvious at the time the invention was made having the above cited references before him. Since Warzecha et

al. teach a process for producing a neutralized reaction mixture comprising a salt of the acidic compound and the basic compound of hydroxyethylcellulose and Takahashi et al., teach a method of subjecting a cellulose ether sodium salt to electrodialysis to convert it to the acid form, one skilled in the art would have a reasonable expectation for success in combining both references to accomplish the conversion of a polysaccharide ether salt to the acidic compound and the basic compound. The motivation for doing so is provided by Takahashi et al., which suggests the electrodialysis step in the preparation of cellulose ether provides high yields and low pollution (page 4, 7th. Paragraph).

2. Response to Arguments

Applicant's arguments filed on April 10, 2003 traversing the rejection of claims 33-51 under 35 U.S.C 103(a) have been fully considered but they are not persuasive. Applicants claim that the Takahashi reference (JP1-149801), does not disclose the treatment of a neutralized liquid with an electric current, thereby to their corresponding acids and bases. However, the use of electrodialysis by utilizing a bipolar membrane to convert a sodium salt mixture to the acid form is within the teachings of Takahashi reference. Regarding Takahashi reference, applicants are referred to page 4, 4th para. lines 1-8, wherein the use of electrodialysis to convert the cellulose ether sodium salt to the acid form is disclosed. Also, the Takahashi reference discloses the electrodialysis as low-plluting in the conversion of a neutralized mixture to their corresponding acids and bases.

Applicants argue, "Warzecha et al., teach a process for purifying crude hydroxyethyl cellulose, which is a non-ionic material." This is not found to be persuasive because the motivation for doing so is provided by Warzecha reference, which suggests "it is necessary to dispose of the waste product which pollutes the waste water since salts of organic acid cause a high biological oxygen demand on the waste water" (see page 2, 3rd para, lines 1-3). It is noted that Warzecha reference discloses that the crude reaction mixture of the hydroxyethylcellulose contains an alkali hydroxide which may be removed with a mixture of organic solvents after transforming the alkali hydroxide into a salt (page 1, 2nd para, lines 1-6).

3. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Devesh Khare whose telephone number is (703)605-1199. The examiner can normally be reached on Monday to Friday from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson, Supervisory Patent Examiner, Art Unit 1623 can be reached at 703-308-4624. The official fax phone numbers for the organization where this application or proceeding is assigned is (703) 308-4556 or 308-4242.
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

JAMES O. WILSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Devesh Khare, Ph.D.,JD(3Y).
Art Unit 1623
September 9,2003